Masud An-Nur Islam Fahim

mostofa21fahim@gmail.com | 045-127-3299 | Explore21 | Vaasa, Finland

Research area: My research interests lie primarily in machine learning theory, self-supervised learning, generative modeling, explainable AI, neural dynamics, and low-level vision problems.

Education

Feb 2021 – Mar 2019 | ***MS,* Computer Engineering**
Chosun University, South Korea

Jul 2017 – Mar 2013 | ***BSc,* Electronics and Communication Engineering**
Khulna University of Engineering and Technology, Bangladesh

Work Experience

Present – Nov 2023 | ***PhD student,* University of Vaasa**
- Currently working on self-supervised action classification and T2I editing with diffusion models.

Oct 2023 – Feb 2022 | ***Project Researcher,* University of Vaasa and Tampere University**
- Developed a new dataset for Pose estimation and verification.
- TTA algorithm for action classifiers in the presence of non-IID stream.
- Developed a Zero-Shot image editing algorithm using the stable diffusion model.

Dec 2021 – mar 2021 | ***Research Assistant,* Chosun University**
- Developed a full solution package for the LiveDet21 competition (5th place).

Selected Publications

- **No-MambAAD: Revitalizing Conv-Only Networks for Unsupervised Anomaly Detection**
  Masud An-Nur Islam Fahim, Jani Boutellier [CVPRw, 2025 **(spotlight)**]

- **STAM: Zero-Shot Style Transfer using Diffusion Model via Attention Modulation**
  Masud An-Nur Islam Fahim, Nazmus Saqib, Jani Boutellier [CVPRw, 2025]

- **FARI: Collaborative Frame Attention ReImagined for Zero-Shot Video Editing**
  Masud An-Nur Islam Fahim, Jani Boutellier [Project Page]

- **Improved Zero-Shot Image Editing via Null-Toon and Directed Delta Denoising Score**
  Masud An-Nur Islam Fahim, Jani Boutellier [ICPR 2024]

- **ST2ST: Self-Supervised Test-time Adaptation for Video Action Recognition**
  Masud An-Nur Islam Fahim, Mohammed Innat, Jani Boutellier [CVPRw, 2024]

- **CheckMATE: Efficient Video Summarization by Checking Mutually Averaged Temporal Encapsulation**
  Masud An-Nur Islam Fahim, Jani Boutellier [CVPRw, 2024]

- **SS-TTA: Test-Time Adaption for Self-Supervised Denoising Methods**
  Masud An-Nur Islam Fahim, Jani Boutellier [CVPRw, 2023]

- **SADT: Combining Sharpness-Aware Minimization with Self-Distillation for Improved Model Generalization**
  Masud An-Nur Islam Fahim, Jani Boutellier [NeurIPSw, 2022]

Technical Projects

- **Novel query generation from the point cloud.**
  As a part of the pose estimation dataset development, a novel algorithm for view extractions was developed. Sampled

views are later refined with respect to the custom-designed gap-filling algorithm to aid the pose estimation.

- **Novel data augmentation through back-propagation.**
  Here, the backprop step was used to pass gradients to the input through a custom augment net for creating new augmentations on the fly. To address the performance fluctuation, KL divergence was used for distillation, resulting in improved generalization.

- **Investigation of learning dynamics to explain generalization.**
  Non-convex optimization is challenging for sure convergence behavior. This trend is more observable with explaining generalization behavior. This project (ongoing) explores the training dynamics, Lipschitz property, loss landscape, and first-order statistical property to address the trends within the generalization of modern deep networks.

- **LivDet fingerprint liveness detection challenge 2021.**
  I participated in the LiveDet 2021 competition, where the given task was to detect the liveness of input fingerprints from various scanner sources. The submitted solution has achieved an overall 5th position in all categories.

- **FRVT face recognition 2021.**
  Actively participated in the FRVT C++ submission package and refining feature vectors for improved performance. Applied customization involves careful dimensionality reduction, and obtained FNMR was almost ten times better than the baseline network.

Programming language

I mostly code in Python, and actively use TensorFlow-Keras and PyTorch library. Occasionally, C++ and MATLAB.

Community service

I am actively reviewing the submissions from CVPR, ECCV, BMVC, and IEEE access.

Honors/Grants

- **National Research Grant for residential area temperature monitoring system, 2017.**
- **National Undergraduate project show, 2016 (ranked 1st,** 0.1%**).**
- **Achieved 6th position at Huawei seeds for the future, 2016.**
- **Robi-Axiata case competition runners-up 2014.**

References

Ref. 1 | ***Jani Boutellier***
School of Technology and Innovations, Computer Science
University of Vaasa
Email jani.boutellier@uwasa.fi

Ref. 2 | ***Prof. Ho Yub Jung***
Dept. of Computer Engineering
Chosun University, Gwangju, South Korea
Email hoyub@chosun.ac.kr

Ref. 3 | ***Prof. Dr.A. B. M. Aowlad Hossain***
Dept. of ECE
Khulna University of Engineering and Technology, Bangladesh
Email aowlad0403@ece.kuet.ac.bd